

**Fig. 1**

[illegible]

**"X" Domain**

1 - SEQ ID NO: 13      2 - SEQ ID NO: 14      3 - SEQ ID NO: 2      4 - SEQ ID NO: 15

## Replacement Sheet



B.

661 GATGTTGCGTGTGGAAGCAGAATTCCTTTCCGAACCTATCTGAGGAAGCAAGGCTGAAGC  
721 CCAGAGGGCCCTCAGATCGAGGGCTGAGCGCAACCCGCAAGACCTGAATCTCATCCCGCG  
781 GAAAGGAGAAGGAGAAGATCAG

803 atggctcttgttggaaacgcattcttagcgagagacaacctcatcag  
M A L L E R I L A R D N L I T  
848 gcgctcaaacgggtcgaagccaaaggagcaccgggaatcgac  
A L K R V E A N Q G A P G I D  
893 ggaqtatcaaccgatcaactccgtgattacatccgcgtcactgg  
G V S T D Q L R D Y I R A H W  
938 agcagcatccgcgcacactcttggcgggaacctacggccggcg  
S T I R A Q L L A G T Y R P A  
983 cctgtccgcagggtcggaaatccgaaacccggcgccggcacaagg  
P . V . . R . . R . . V . . G . . I . . P . . K . . P . . G . . Q . . G . . T . . R . .  
1028 cagctaggcattccacccgtgggtggacgggtgattccaaacggcc  
Q L G I P T V V D R L I Q Q A  
1073 attctcaagaactcacacccatttctgacacagacttctccct  
I L Q E L T P I F D P D F S P  
1118 tccagcttcggattccgtccggcgtaacgcccacgatgccgtg  
S S P G F R P G R N A H D A V  
1163 cggcaagcgcaaggctacatccaggaagggtatcggtacgtggc  
R Q A Q G Y I Q E G Y R Y V V  
1208 gacatggacctggaaagtctcttgcgtgggtcaacctgacatc  
D M D L E K F P D R V N H D I  
1253 ttgatgagtcgggtggccgaaagtcaaggataaacgcgtgctg  
L H S R V A R K V K D K R V L  
1298 aaactgctcgtgctacatccgaaagcggttatgatcgaaggg  
K L I R A Y L Q A G V H I E G  
1343 gtgaaggtgcagacgggaagggaagcgccgcaagcgcccccctc  
V K V Q T E E G T P Q G G P L  
1388 agcccccctgctggcgaacatccttctcgaagatttagacaaggaa  
S P L L A R N I L D D L D K E  
1433 ttggagaagcgaggattgaaattcttccgttacgcagatgactgc  
L E K R G L K F C R Y A D D C  
1478 aacatctatgtgaaagtctcggggcaggacaacgggtgaacaa  
N I Y V K S L R A G Q R V K Q  
1523 agcatccaaaggttcttggagaacagctcaaaactcaagtaaac  
S I Q R F L E K T L K L K V N  
1568 gaggagaaagtgcgggtggaccgctggaaacgggcctttctg  
E E K S A V D R P W K R A P L  
1613 gggcttagcttcacacgggaacgaaagcggaatccggctcgcc  
G F S F T P E R K A R I R L A  
1658 ccaaggtcgattcaacgtctgaacagcggttcgacagctgacc  
P R S I Q R L K O R I R Q L Y  
1703 aaccgaactcggacatctogattgccgaacgaattcatcgctc  
N P N W S I S M P E R I N R V  
1748 aatcaatcgtctatgggatggatcgggtatcttctggctcgtgaa  
N Q Y V H G W I G Y F R L V E  
1793 acccgtctgtccttcagaccatcgaaggatggattcggaggagg  
T P S V L Q T I E G W I R R R  
1838 ctctgactctgtcaatggcttcaatggaaacgggtcagaaccaga  
L R L C Q M L O W K R V R T R  
1883 atccgtgagtttaagagcgtcggggtgaagagacagcgggtgatg  
I R E L R A L G L K E T A V H  
1928 gagatcgccaataccgaaaggagcttggcgaaacgaaacg  
E I A N T R K G A W R T T K T  
1973 ccgcaactccacagggccctgggcaaacctactggacggctcaa  
P Q L H Q A L G R T Y W I K V  
2018 gggctcaaggtttgacgcaacgatatttcgaactccgtcaaggt  
G L K S L T Q R Y F E L R Q G  
2063 tga

Bst755

Fig. 2

Bst1396

DNA - SEQ ID NO: 16  
Protein - SEQ ID NO: 2

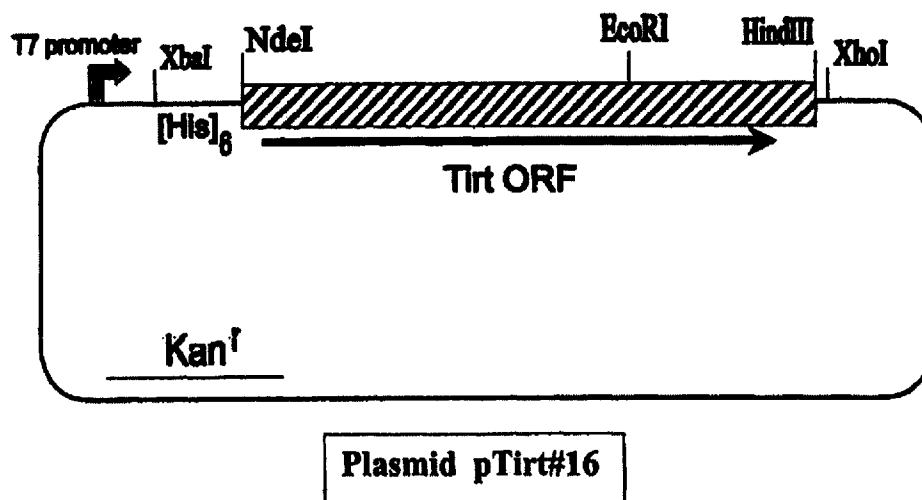
Bst2015

CGAACCCCTAGTGGGACCCGATGCTAGGTGGT  
2102 GTGAGGGGACGGGGTTAGCCGCCCCCTCTACTCGATTGCTATTGTCAATTCGGCGCTAT  
2162 GCCACGCCGAAGCGCCAGAACCTCAAGCCCTCTCTCTGTTAGATCGTCTCCTTCCCGC  
2222 GCACGCCGTTGATCGAATAGCTCGCTGTAATGGCGCATTTAAGCAATGGGAACGGGAAC

Bst2198

Fig. 8

A.



B.

T7 promoter

1 TGGNNNNAGT NTTTAAACCT TTGNACCGCC NTAATACNAC TCACTATAGG

*lac operator*

51 GGAATGTGA GCGGATAACA ATTCCCTCT AGAAATAATT TTNTTTAACT

*rbs* *His-tag*

101 TTAAGAAGGA GATATACCat gggcagcagc catcatcatc atcatcacag

M G S S H H H H H H S

> start of fusion *NdeI*

151 cagcggcctg gtgcccgcgc gcagcatat ggggcaagac ctgaatctca

S G L V P R G S H M R Q D L N L I

201 tcccgcggaa ggagaagatc acgatgctt tggtggaacg catcttagcg

P R K E K I T M A L L E R I L A

> start of Tirt ORF

251 agagacaacc tcatcacggc gtcanaacgg gtcgaagcca accaaggagc

R D N L I T A L K R V E A N Q G A

DNA Sequence - SEQ ID NO: 17

Amino Acid Sequence - SEQ ID NO: 18

Fig. 1

1	B. halodurans	15	16	30	31	45	46	60	61	75	76	90
2	C. acetobutylicum	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	Bst803-2065	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	PalcaligenesMatur	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	B. halodurans	105	106	120	121	135	136	150	151	165	166	180
2	C. acetobutylicum	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	Bst803-2065	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	PalcaligenesMatur	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	B. halodurans	195	196	210	211	225	226	240	241	255	256	270
2	C. acetobutylicum	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	Bst803-2065	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	PalcaligenesMatur	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	B. halodurans	285	286	300	301	315	316	330	331	345	346	360
2	C. acetobutylicum	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	Bst803-2065	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	PalcaligenesMatur	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	B. halodurans	375	376	390	391	405	406	420	421	435	436	450
2	C. acetobutylicum	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	Bst803-2065	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	PalcaligenesMatur	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

"X" Domain

1 - SEQ ID NO: 13 2 - SEQ ID NO: 14 3 - SEQ ID NO: 2 4 - SEQ ID NO: 15

Replacement Sheet

Enlarged text  
Added Seq ID #s



B.

661 GATGTTGCGTGTGGAAGCAGAATTCCTTTCCGAACATCATCTGAGGAACCAAGGGTGAAGC  
 721 CCAGAGGGCCTCAGATCGAGGGCTGAGCGCAACCCGGCAAGACCTGAATCTCATCCCGCG  
 781 GAAGGAGAAGGAGAAGATCACG

803 atggtcttgttggaaagcatcttagcgagagacaacctcatcacg  
 M A L L E R I L A R D N L I T  
 848 gcgctcaaacgggtcgaaagccaaacaaaggagcaacgggaatcgac  
 A L K R V E A N Q G A P G I D  
 893 ggaatatacaaccgatcaactccgtgattacatcccgctcactgg  
 G V S T D Q L R D Y I R A H W  
 938 agcacgataccgcgccaaactcttggcgggaacctacggcgccggc  
 S T I R A Q L L A G T Y R P A  
 983 cctgtccgcagggtcggaatcccgaaacggggcgccgcacacgg  
 P . V . R . R . V . G . I . P . K . P . G . G . T . R .  
 1028 cagctaggcattcccccgggtgggtggcgggtgattccaaacagcc  
 Q L G I P T V V D R L I Q Q A  
 1073 attcttcaagaactcaacccattttcgatccagatcttccctcc  
 I L Q E L T P I P D P D P S P  
 1118 tccagcttcggattccgtccgggcccgaacgcccagatgcggtg  
 S S F G F R P G R M A H D A V  
 1163 cggcaagcgcaaggctacatccaggaaaggttatcggtacgtggtc  
 R Q A Q G Y I O E G Y R Y V V  
 1208 gacatggacctggaaaagtctcttgatcggtgcaacatgacatc  
 D M D L E K F P O R V H N D I  
 1253 ttgatgagtcgggtggccggaagtcaggatcaacggcggtgctg  
 L M S R V A R K V K D K R V L  
 1298 aaactgataccgtgacctgcaacggcggttatgatcgaaagg  
 K L I R A Y L Q A G V H I E G  
 1343 gtgaaggtgcagacggaggaaggacgcgcgaagggcgccccc  
 V K V Q T E E G T P Q G G P L  
 1388 agcccccgtgctggcgcaacatctcttcgacgatttagacaaggaa  
 S P L L A A N I L D D L D K E  
 1433 ttggagaagcgaggattgaattctgcccgttacgcagatgactgc  
 L E K R G L K F C R Y A D D C  
 1478 aacatctatgtgaaagtctcgggcgaggaacgggtgaaacaa  
 N I Y V K S L R A G Q R V K Q  
 1523 agcatccaaacgggtcttggagaagcgctcaaacctcaagtaaac  
 S I Q R F L E K T L K L K V . N  
 1568 gaggagaaggtgctggtggccggccttggaaacggggccttctg  
 E E K S A V O R P W K R A F L  
 1613 ggggttagcttccacccggaaacgaaagcggaatccgggtcgcc  
 G F S F T F E R K A R I R L A  
 1658 ccaaggtcgattcaacgctgaacagcggtatcgacagctgac  
 P R S I O R L K O R I R Q L T  
 1703 aacccaaactggagcatatcgatgccgaacgaattcatcgctc  
 N P N W S I S H P E R I H R V  
 1748 aatcaatacgtcatgggatggatcggtattttcggtcgtcgaa  
 N O Y V H G W I G Y F R L V E  
 1793 acccgcgtctgctctcagaccatcgaaaggtggttcggaggagg  
 T P S V L Q T I E G W I R R R  
 1838 ctccgactctgcaatgggttcattggaacgggtcgaaaccca  
 L R L C Q W L Q W K R V R T R  
 1883 atccgtgagttaaagagcgttgggctgaagagacagcgtgag  
 I R E L R A L G L K E T A V M  
 1928 gagatcgcccaatacccgaaaggtgcttggcgaacacgaaacg  
 E I A N T R K G A W R T T K T  
 1973 ccgcaactccaccagccctggcggaacctactggacggctcaa  
 P Q L H Q A L G A T T W T A V  
 2018 ggggtcaagagtttgacgcaacgatatttgaactccgtcaaggt  
 G L K S L T Q R Y F E L R Q G  
 2063 tga

Bst755

Fig. 2

moved  
Fig. #

Enlarged  
text

Bst1396

DNA - SEQ ID NO: 16

Protein - SEQ ID NO: 2

Added  
Seq ID #s

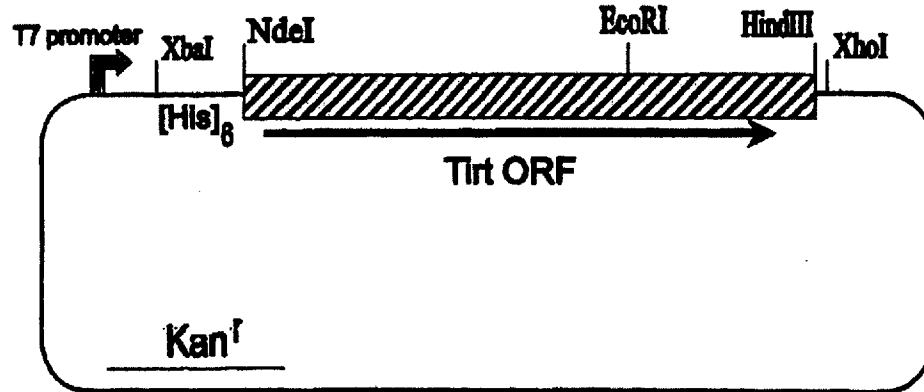
Bst2015

Bst12198

CGAACCCCTAGTCCGGACCCGATGCTAGGTGGT  
 2102 GTGAGGGGACGGGGGTTAGCCGCCCTCTACTCGATTGCTATTGTCATTGCGCGCTAT  
 2162 GCCACCGGAACGGCCCAAGAACGTCAGCCCTTCCTTGTAGATCGTCTCCTTCCCGC  
 2222 GCACCGCCTTGTATCGAATAGCTCGCTGTAATGCCGACATTTAACGAATGGGAACGGAAC

Fig. 8

A.



Plasmid pTirt#16

B.

T7 promoter

1 TGGNNNNAGT NTTTAAACCT TTGNACCGCC NTAATACNAC TCACTATAGG

*lac operator*

51 GGAATTGTGA GCGGATAACA ATTCCCCTCT AGAAATAATT TTNTTTAACT

*rbs* *His-tag*

101 TTAAGAAGGA GATATACCat gggcagcagc catcatcatc atcatcacag

M G S S H H H H H H S

> start of fusion *NdeI*

151 cagcggcctg gtgccgcgcg gcagccatcat gcggcaagac ctgaatctca

S G L V P R G S H M R Q D L N L I

201 tcccgcggaa ggagaagatc acgatggett tgttggaacg catcttagcg

P R K E K I T M A L L E R I L A

> start of Tirt ORF

251 agagacaacc tcatacagcg gctcaaacgg gtcgaagcca accaaggagc

R D N L I T A L K R V E A N Q G A

DNA Sequence - SEQ ID NO: 17

Amino Acid Sequence - SEQ ID NO: 18

*Added  
seq. ID #s*